

Wildlife Report

Cruzanne Mountain Project

Species	Status	Habitat	Is habitat Present in the Project Area	Effect of action Alternatives
Grizzly bear	Federally listed - Threatened	Large areas of forest and meadow	Yes	Not Likely to Adversely Affect
Canada lynx	Federally listed - Threatened	Dense spruce-fir coniferous forest	Yes – extremely limited	Not Likely to Adversely Affect
Wolverine	Federally - Proposed USFS Sensitive	Areas of persistent spring snow	No	Would not jeopardize No Impact
Yellow-billed Cuckoo	Federally listed - Threatened	Large areas of cottonwood river bottoms	No	No Effect
Boreal toad	USFS Sensitive	Breeds in water, forages in forests	Yes	May impact individuals or habitat
Fisher	USFS Sensitive	Mature forests with high connectivity	Yes	May impact individuals or habitat
Gray wolf	USFS Sensitive	Large areas of forest and meadow	Yes	May impact individuals or habitat
Bald eagle	USFS Sensitive	Large rivers or lakes	No	No impact
Bighorn sheep	USFS Sensitive	Rock cliffs and open grassland, shrubfields	No	No impact
Black-backed woodpecker	USFS Sensitive	Burned forests	No	No Impact
Coeur d'Alene salamander	USFS Sensitive	Waterfall areas, springs, talus slopes with water	No	No Impact
Common loon	USFS Sensitive	Large lakes or rivers	No	No Impact

Species	Status	Habitat	Is habitat Present in the Project Area	Effect of action Alternatives
Flammulated owl	USFS Sensitive	Mature and older open pine forests	No	No Impact
Harlequin duck	USFS Sensitive	Larger, fast-flowing streams	No	No Impact
Leopard frog	USFS Sensitive	Large water bodies with vegetation	No	No impact
Northern bog lemming	USFS Sensitive	Wet meadows, bogs, and fens	No	No Impact
Peregrine falcon	USFS Sensitive	Larger valleys, with cliff-nesting sites	No	No impact
Townsend's big-eared bat	USFS Sensitive	Caves, mines and mature and older open pine forests	No	No Impact
Big game (Elk)	Management Indicator	Forests and grassland areas	Yes	Would maintain habitat
Northern goshawk	Management Indicator	Mature coniferous forests	Yes	Would maintain natural old growth habitat
Pileated woodpecker	Management Indicator	Areas with larger trees	Yes	Would maintain habitat

How were effects assessed

- i) Direct effects were considered by estimating the likelihood and severity of one or more individuals being killed, harmed, disturbed, or injured during any of the project activities.
- ii) Indirect effects were considered based on changes to habitat and changes in conditions of other variables that could affect the species.
- iii) Cumulative effects were considered based on either the project area or a broader area if applicable adding effects of other non-project activities with the project effects to insure their aggregated effects would not result in a loss of viability for any species.

Threatened and Endangered Species

Grizzly Bear

1) **Regulatory Framework**

- a) **ESA/FS status** - Threatened
- b) **Project geographic area in relationship to the species** - The project area is about 15 mile south of the Cabinet-Yaak Recovery Zone and between the Cabinet-Yaak and Bitterroot ecosystems.
- c) **Applicable management requirements** –
 - i) **General** – Grizzly bears have been defined as “May be present” by USFWS in this portion of the state. No specific management requirements exist for the area except to assess effects and consult with USFWS as required by Section 7 of the ESA. Because the area is adjacent to a linkage zone identified by (Servheen, Waller and Sandstrom 2001, Servheen, Waller and Sandstrom 2003), we considered the important characteristics they identified in our analysis (Forest cover, riparian zones, roads, and developed sites).
 - ii) **Specific** - None

2) **Analysis Area** – Project area

- a) **Size of project area**, 3790 acres
- b) **Comments on area of project effects** – This is a small analysis area for grizzly bears because effects are anticipated to occur only to traveling bears. No resident bears are expected to occupy the area during the time of the project.
- c) **Time duration when effects will occur**
 - i) **Direct** – 2021-2035
 - ii) **Indirect** – 2021-2060
 - iii) **Cumulative** – 2021-2060

3) **Population**

- a) **Status** – The nearest population (C-Y) appears to have about 55-60 bears with a recovery goal of about 100. The population is mainly within Cabinet-Yaak Recovery Zone near the Cabinet Wilderness area or in the Yaak area. Certain areas adjacent to the Recovery Zone have been identified within which bears are managed more specifically (“BORZ”), however, these areas are not near the Project area (Kendall et al. 2016; Allen 2012). There are no areas on the Lolo National Forest where Cabinet-Yaak grizzly bears are reproducing outside of the Recovery Zone. The species is likely absent from the project area except for a possible “travel-through” bear on rare occasion. Because grizzly bears are a wide-ranging species, random movements are always possible. It is unknown where future observations will occur.
- b) **Trend** – Population showing slight growth in the Cabinet Yaak Ecosystem between 1983 and 2017 ($\lambda=1.016$, 1=stable, above 1 = growing population, Kasworm et al. 2017).

4) **Observations and Surveys** –

- a) **Observations** - No observations, no sign of grizzly bears were observed during field reviews of the area.
- b) **Surveys** – no grizzly bear surveys have been conducted in the area. However, because they would be unusual, an observation of a grizzly bear would likely be reported by USFS employees or the public in the area. No reports are known.

5) **Habitat** –

- a) **Species needs** – Abundant food sources away from potential human-caused sources of mortality. Food sources include lower elevation south aspects in spring, mountain grasslands, avalanche chutes, and berry patches in summer, and whitebark pine seeds, moth larvae, or carrion in fall.
 - b) **Quality** - Moderate in the project area. The area is forested with a variety of forest types that could supply a bear with spring, summer, and fall food. Because access is poor, the likelihood of disturbance/mortality is low. However, no high-elevation avalanche chutes/grasslands exist and thus there is no denning habitat. Because the area is small (only about 5% of the size of a female grizzly home range), habitat could be used in spring/summer/fall with denning occurring elsewhere. Also, likely human attractants on nearby private lands increase potential of conflicts and associated mortality. The project is within an identified Linkage Zone (Servheen et al. 2003) to enable bears to move from the Cabinet-Yaak to Bitterroot ecosystems although no documented movements have occurred through the area.
 - c) **Quantity** – The area could currently function as a small portion of a grizzly bear home range.
- 6) Effects of No Action**
- a) No Action would have no direct, indirect, or cumulative effect on grizzly bears
- 7) Effects of the Project**
- a) **Measure 1: Compliance with management requirements** – No specific management requirements apply in this area.
 - b) **Measure 2: Direct effects**
 - i) Project activities (roads and vegetation management) have an exceedingly low likelihood of killing or injuring a bear because bears are very unlikely to be using the project area. If a bear were using the area during activities, the bear would simply move away from the noise, machinery, or vehicles and no further effects would ensue.
 - c) **Indirect**
 - i) **Indirect Effects** –
 - (1) Linkage areas: (Servheen et al. 2003) identify that the crossing issues on the interstate (I90) are the critical issue which will make other issues inconsequential. For this reason, and because vegetation management proposed in the project would not change the ability of bears to make short-term movements through the area, linkage/connectivity would not affect bears.
 - (2) Habitat Change: The project would change 981 acres of mature forest into open, early successional forest which provides less cover, but more forage herbaceous plants. The project would also change 522 acres of mature forest into open-canopied forests which also provide less cover, and more forage. Treatments occurring on the south aspects could improve spring habitat increasing the likelihood of bears using the area. Opening stands within the continuously forested area may increase the likelihood of a shooting incident or may reduce a bear-human conflict because the bear is less likely to be surprised. Also, the reconstruction and use of roads (even if closed afterwards), would result in easier walk-in access and may cause an insignificant level of disturbance from walk-in human use.
 - ii) **Cumulative Effects**

- (1) **Cumulative Effects area and measures:** Cumulative effects could be any activities occurring within about 10 miles of the Cruzanne project area that may have an impact on grizzly bears moving through. According to Servheen et al (2003), these include vegetation management, new recreation areas, new roads or traffic increases, or impacts to riparian areas.
 - (2) **Why is it important to the species?** These activities are thought to potentially limit or reduce the ability of bears to successfully move through a large landscape and repopulate new areas {Servheen, 2003, Identification and management of linkage zones for wildlife between the large blocks of public land in the northern Rocky Mountains}.
 - (3) **How was it measured and quantified?** These activities were identified through USFS project proposals and MDOT highway (I90) planning. Future activities on private lands are unknown.
 - (4) **Is the measure required by law/policy, plan, etc.?** No
 - (5) **Is there a legal or biological threshold?** None known
 - (6) **Cumulative Effects:** Vegetation management is unlikely to occur within the cumulative effects area in the next 15 years or so except for this project. Riparian zones or developed recreation sites are also unlikely to change substantially in this time period because riparian zones are protected by USFS policy and no changes to recreation sites are scheduled. The changes anticipated along roads within the cumulative effects area include smaller segments of closure and opening (e.g Summer Trails Project) along the system of gravel forest roads around the Cruzanne Project area. Additionally, traffic on I90 and county roads is likely to slowly increase over time and construction occurs nearly every year. However, construction, by reducing traffic speeds, may reduce likelihood of grizzly bear mortality.
- 8) **Conclusion/**
- a) **What is determination?** May affect, not likely to adversely affect
 - b) **Rationale?** The project may have an effect, but an insignificant and partially beneficial effect on bears because: 1) there is a possibility of bears using the area and some disturbance may result, 2) habitat change would increase forage (benefitting possible bear use) and 3) changes in visibility which has both benefits and drawbacks for bears.

Canada Lynx

- 1) **Regulatory Framework** - Canada lynx are listed under the Endangered Species Act of 1973 as a threatened species. The Lolo National Forest was designated as occupied habitat due to the documented presence of lynx in recent years. In 2013, the USFWS also designated a portion of the Lolo National Forest as Critical Habitat, although no Critical Habitat is within about 48 miles of the project area (U.S. Department of Interior 2013a). The USFWS (2017), in their 5-year review of Canada lynx status, identified the species as not meeting the definition of Endangered or Threatened and therefore recommended delisting of the species (U.S. Department of Interior). The Northern Rockies population of lynx were identified as “very likely to persist” in the near term (2025) and at mid-century (2050) and thus USFWS recommended delisting (U.S. Department of Interior). Until delisting, outside of Critical Habitat, take of Canada lynx is regulated by the 2007 Northern Rockies Lynx Management Direction (NRLMD) (Amended to the 1986 Lolo Forest Plan) which specifies activities their potential effects to lynx and the appropriate consultation process with USFWS depending on project impacts (U.S. Department of Agriculture 2007). The NRMLD objectives, standards, and guidelines clearly specify management actions for the species within the species’ habitat.
- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area
 - b) **Time duration when effects will occur**
 - i) **Direct** – 2021-2035
 - ii) **Indirect** – 2021-2060
 - iii) **Cumulative** – 2021-2060
- 3) **Population Status and Trend**
 - a) **Known** – The Northern Rockies population of lynx were identified as “very likely to persist” in the near term (2025) and at mid-century (2050) and thus USFWS recommended delisting (U.S. Department of Interior).
 - b) **Unknown** -
- 4) **Observations and Surveys** – Several surveys for carnivore tracks occurred in 2011 in prospect Creek north of the project area and in Ward Creek south of the project area. No lynx were observed. Also, no lynx observations from the project area are known from the MT Natural Heritage Database.
- 5) **Habitat** – Habitat is very limited in the project area – no spruce-fir, high quality foraging habitat exists. Most habitat classified as lynx habitat by the NRLMD definition is “secondary” habitat comprised of western larch and grand-fir intermixed with some lodgepole pine and a few spruce/subalpine fir trees. Understory vegetation is generally very open and unsuitable to recruit abundant snowshoe hares. For these reasons habitat is very poor. The project area is within the Savenac and Wilkes LAUs (see table 1). Both primary and secondary habitat are managed identically as lynx habitat according to the 2007 NRLMD. Habitat surveys in 2015-2018 on the LNF West Zone in the Wilkes and West Fork Fishtrap LAUs reveal low densities of snow show hares across these LAUs, even in areas with high horizontal cover (LNF, Unpublished Data).

Table 1. Lynx habitat (all ownerships) in the Savenac and Wilkes LAUs.

LAU (acres of lynx habitat)	Acres of Primary habitat	Stand initiation¹	Early stand initiation/temp unsuitable²	Multistory³	Stem exclusion/other⁴
Savenac (17,261)	7250	600	495	7573	8593
Wilkes (9940)	3945	499	356	4283	4801

¹Stand initiation structural stage that currently provides year-round snowshoe hare habitat because the trees have grown tall enough to protrude above the snow in winter.

²Stand initiation structural stage where the trees have not grown tall enough to protrude above the snow in winter but can provide snowshoe hare habitat during the non-winter months and is typically moving toward year-round snowshoe hare habitat.

³Multistory structural stage with many age classes and vegetation layers that provide year-round snowshoe hare habitat via dense horizontal cover.

⁴Other –Closed canopy lacking dense horizontal cover; does not provide snowshoe hare habitat due to lack of dense horizontal cover; e.g. Stem Exclusion Structural Stage.

6) Effects of the Project

a) **Compliance with management requirements** – Will the project follow standards set forth in the NRLMD? – See list of Lolo Forest Plan Standards and compliance in the project file.

b) **Discussion of direct, indirect, and cumulative effects** – How would individual lynx or their habitat be affected by the project?

i) **Direct Effects** – Project activities (roads, vegetation management, and prescribed fire) have an exceedingly low likelihood of killing, injuring, or displacing a lynx because they are very unlikely to be using the project area. If lynx were using the area during activities, they would simply move away from the noise, machinery, or vehicles and no further effects would ensue. There could be limited instances of disturbance between 2021 and 2035, but because lynx habitat is poor, and lynx rarely use the area, these occurrences would be very rare. These effects would be discountable and insignificant.

ii) **Indirect Effects** – Habitat Change: In the Savenac LAU, 7 acres of stem exclusion/other habitat would be converted to early stand initiation and an additional 7 acres would be commercially thinned but remain a mature forest stand. This leaves only 3% of the LAU in an early stand initiation condition meeting NRLMD standard Veg S1. In the Wilkes LAU, 45 acres of stem exclusion/other habitat would be converted to early stand initiation and an additional 14 acres would be commercially thinned but remain a mature forest stand. This leaves only 4% of the LAU in an early stand initiation condition meeting NRLMD standard Veg S1. Because the amount of young forest is limited to 3-4% in these LAUs, standard Veg S2 would be met. Standard Veg S5 postpones precommercial thinning and none is proposed. The proposed action would also comply with Standard Veg S6 because all mapped mature-multistory habitats were field verified, and none were comprised of both multistory stands and high horizontal cover needed to provide high-quality lynx habitat.

Table 2. Lynx habitat, *after treatment*, in the Savenac and Wilkes LAUs.

LAU (acres of lynx habitat)	Acres of Primary habitat	Stand initiation ¹	Early stand initiation/temp unsuitable ²	Multistory ³	Stem exclusion/ other ^{4, 5}
Savenac (17,261)	7250	600	502	7573	8588
Wilkes (9940)	3945	499	401	4283	4756

¹Stand initiation structural stage that currently provides year-round snowshoe hare habitat because the trees have grown tall enough to protrude above the snow in winter.

²Stand initiation structural stage where the trees have not grown tall enough to protrude above the snow in winter but can provide snowshoe hare habitat during the non-winter months and is typically moving toward year-round snowshoe hare habitat.

³Multistory structural stage with many age classes and vegetation layers that provide year-round snowshoe hare habitat via dense horizontal cover.

⁴Other –Closed canopy lacking dense horizontal cover; does not provide snowshoe hare habitat due to lack of dense horizontal cover; e.g. Stem Exclusion Structural Stage

⁵ This habitat may have included areas that were originally modeled as mature multistory, but through field verification, they were confirmed to lack either the multistory stand conditions or the dense horizontal cover needed by lynx.

iii) Cumulative Effects –

(1) Cumulative Effects Area and Measures: The cumulative effects area includes the entire Wilkes and Savenac LAUs because they contain the entire project area and are large enough to encompass any potential impacts to lynx. Measures include the capacity to which the standards required in the NRLMD are being followed. These standards were developed to protect the aspects of Canada lynx habitat considered most vulnerable.

(2) Why was this measured? This is a common and accepted measure of how actions may impact lynx.

(3) Why is it important to the species? The standards in the NRLMD address the most critical issues to lynx in the Northern Rocky Mountains.

(4) How was it measured and quantified? Standards were mainly addressed qualitatively, except those requiring numbers of acres affected (see tables above).

(5) Is the measure required by law/policy, plan, etc.? yes. The LNF Plan requires these standards to be followed.

(6) Is there a legal or biological threshold? None known

(7) Cumulative Effects: The project would meet all standards within the NRLMD (see project file for details), and because of lack of suitable habitat (see above), no cumulative effects are anticipated.

7) Conclusion/

a) **What is determination?** May affect, not likely to adversely affect

b) **Rationale?**

i) The project may have an effect because:

(1) Lynx habitat would be changed. Mature stands would be converted into early stand initiation successional stage.

- (2) Activities would occur over a period of 5-15 years potentially causing disturbance to a very small number of lynx through time.
- ii) The effects are not likely to be adverse because:
 - (1) There is little likelihood of lynx using the area – especially for longer periods of time because the habitat is likely unsuitable
 - (2) Habitats in the project area are already poor for lynx and changing successional stage is likely to be insignificant because even the older stages were poor habitat.
 - (3) Habitat change would affect less than 1% of the LAU and would be discountable and insignificant.

DRAFT

Sensitive Species

Bald Eagle

1) Regulatory Framework

- a) **ESA/FS status** - USFS, R1 Sensitive
- b) **Project geographic area in relationship to the species** – The project area is across the interstate and upstream (greater than 2.5 miles) from any eagle nest.
- c) **Applicable management requirements** –
 - i) **General** – No specific conservation measures, standards, or guidelines are offered in the Lolo Forest Plan (U.S. Department of Agriculture) and no monitoring is specified. According to the Montana Natural Heritage Program, Field Guide website, 3/9/19) the species is doing well in Montana and worldwide but is still protected under the Bald and Golden Eagle Protection Act of 1940. Because the species is listed as Sensitive in the Northern Region, management is guided by the Montana Bald Eagle Management Plan 2010 addendum (MBEWG). With recommended nest site protection measures that extend about 2.5 miles from nest sites. Protection measures outside of this area are based only on ensuring aquatic habitats remain productive and safe for eagle use.
 - ii) **Specific** - None

2) Analysis Area – Project area

- a) **Size of project area**– 3790-acre project area
- b) **Comments on area of project effects**
- c) **Time duration when effects will occur**
 - i) **Direct** - NA
 - ii) **Indirect** - NA
 - iii) **Cumulative** – NA

3) Population

- a) **Status** – Eagles were delisted in 2007 and subsequently managed and monitored by MTFWP. In recent years (2016), MTFWP has ceased monitoring of bald eagles because of high, stable populations. USFS monitoring also ceased. Eagles are one of the most visible, common bird species along the Clark Fork River and other tributaries and lakes where fish populations are sufficient to support them. The Montana Natural Heritage Program concurs that “Population numbers have steadily increased since the 1980s and breeding pairs now occupy a high percentage of suitable habitat across the state. However, the species is still protected under the Bald and Golden Eagle Protection Act of 1940.” This merits the MTNHP ranking the more protective S4 (rather than S5).
- b) **Trend** – populations are high enough that trend is not estimated.

4) Observations and Surveys –

- a) **Observations** – None, the area is not suitable habitat for eagles, although some use may occur in fall/winter.
- b) **Surveys** – no surveys have been conducted in the area.

5) Habitat

- a) **Species needs** – Generally associated with areas close to bodies of water with fish, including wetlands, lakes, or rivers. Associated with large deciduous or coniferous nesting trees.
 - b) **Quality** - Low in the project area because of a lack of large water bodies with abundant fish.
 - c) **Quantity** – The upper St Regis River may see occasional use by eagles but use of forested or open upland stands across the interstate from the river would be much rarer. This would only occur if eagles happened to locate a dead deer/elk and were feeding on it well above the river in the project area.
- 6) **Conclusion/**
- a) **What is determination?** No Impact
 - b) **Rationale?** The absence of habitat in the project area precludes any long-term use of the area. For this reason, the project would have No Impacts on the species.

Bighorn Sheep

- 1) **Regulatory Framework** - The bighorn sheep is listed as a Sensitive species in the Northern Region and thus ensuring that viability is maintained is the management goal. No specific conservation measures, standards, or guidelines are offered in the Lolo Forest Plan (1986) and no monitoring is specified. The species is classified as apparently secure, but suspected to be potentially declining in the state and worldwide {Montana Natural Heritage Program, Field Guide website, 2/26/19}.
- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area
 - b) **Temporal** – 2021 - 2035
- 3) **Population Status and Trend**
 - a) **Known** – Bighorn sheep populations are widespread but there are few to no sheep between these populations. Population numbers fluctuate due to disease outbreaks and some populations have been entirely lost. MTFWP regularly transplants sheep from larger populations into new areas or into weaker populations. The species is likely absent from project area with the nearest population being between Plains and Thompson Falls along Highway 200.
- 4) **Observations and Surveys** – 9/26/2018, walk-through of area, no observations, no sign.
- 5) **Habitat**
 - a) **Species needs** – Habitat use of the species is nearly exclusively tied to open, drier habitats with cliffs and rocky areas nearby for escape habitat. These do not exist in the project area.
 - b) **Quality** - NA
 - c) **Quantity** – No habitat is present in the project area
- 6) **Conclusion**
 - a) **What is determination?** No Impact
 - b) **Rationale?** The project would have no impact on the species because bighorn sheep are absent in the area.

Black-Backed Woodpecker

- 1) **Regulatory Framework** - The black-backed woodpecker is listed as a Sensitive species in the Northern Region and thus ensuring that viability is maintained is the management goal. No specific conservation measures, standards, or guidelines are offered in the Lolo Forest Plan (1986) and no monitoring is specified. The species is classified as a “Species of Concern” in Montana, having very limited habitat and/or potentially declining populations in the state; worldwide, it is classified as between “Common, widespread and abundant” (Montana Natural Heritage Program, Field Guide website, 2/26/19).
- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area (adjacent areas within 50-100 meters considered as well)
 - b) **Temporal** – 2021 - 2035
- 3) **Population Status and Trend**
 - a) **Known** – This species is very abundant in the Northern Region of the Forest Service after higher-intensity wildfires, but nearly absent in other types of forest stands.
- 4) **Observations and Surveys** – Multiple walk-through surveys of the area, no observations.
- 5) **Habitat**
 - a) **Species needs** – Habitat use of the species is nearly exclusively tied to stands that have abundant dead trees due to a recent fire. Nest trees are usually sawtimber-size Douglas-fir. Because of their reliance on wood-boring beetles for food, post-fire habitats generally only support the species for 2-5 years after fire.
 - b) **Quality** - NA
 - c) **Quantity** – No habitat is present in the project area
- 6) **Conclusion**
 - a) **What is determination?** No Impact
 - b) **Rationale?** The absence of habitat precludes use of the area by the species and therefore precludes any impacts on the species from the project.

Boreal Toad

- 1) **Regulatory Framework** - The boreal/western toad is listed as a Sensitive species in the Northern Region and thus ensuring that viability is maintained is the management goal. No specific conservation measures, standards, or guidelines are offered in the Lolo Forest Plan (1986) and no monitoring is specified. The species is classified as a “Species of Concern” in Montana, having very limited habitat and/or potentially declining populations in the state; worldwide, it is classified as apparently secure, but may be declining in parts of its range (Montana Natural Heritage Program, Field Guide website, 2/26/19).
- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area.
 - b) **Temporal** – 2015 - 2035
- 3) **Population Status and Trend**
 - a) **Known** – Boreal toads are widespread although population numbers are unknown. Adults have been observed in many areas around the Lolo NF, but breeding wetlands are not common. Individuals can be quite common around breeding wetlands. The species is likely present in the analysis area at the adult life stage because it is widespread across the LNF.
- 4) **Observations and Surveys** – 2018/2019, several walk-through surveys of the area, no observations.
- 5) **Habitat**
 - a) **Species needs** – Habitat use of the species includes many forest and grasslands vegetation communities. Breeding wetlands are often vernal pools or smaller pools adjacent to larger ponds or rivers, although pools along streams and river are used also. These areas are used between May and August by young toads, and upland areas are used throughout the remainder of the year. Adults use upland areas throughout the year except during the spring breeding season.
 - b) **Quality** – Average upland habitat.
 - c) **Quantity** – Upland habitat in the project area (3790 acres) is suitable for boreal toads (as most upland habitats are). No breeding wetlands are specifically known, although breeding wetlands may exist along Packer and McManus Creeks or the St-Regis River. Also, some of the springs and seeps in the project area may be quite suitable for breeding.
- 6) **Direct and Indirect Effects of the Project:** Because toads can use nearly any upland habitat, pre- and post-treatment forest conditions likely makes no difference to their use. Thus, the potential project effects are based mainly on the amount of direct mortality caused by mechanical activities during the project. Because the project would not impact breeding wetlands or streams, these were not considered. A qualitative discussion of the potential mortality of adults from logging machinery was used.
 - a) **Why is it important to the species?** Acres of mechanical activity is a measure of risk of crushing adult or juvenile toads across upland areas. Prescribed fire was not considered because toads are able to effectively use underground burrows, or areas to avoid the heat of fire, especially low intensity prescribed fire. Manual activities such as hand slashing with chainsaws were also not considered because of the lower ability to crush a toad in a burrow and fewer overall square feet affected by humans versus larger machinery.
 - b) **How was it measured and quantified?** Acres of mechanical activities were compared between alternatives because the more area over which logs are dragged or machinery is

operating, the greater the mortality risk for individual, adult toads. Potential for mortality is reduced because most harvest occurs in the daytime and toads are often inactive, spending the day under rocks, logs, or in burrows although mortality may occur within burrows too.

- c) **Is the measure required by law/policy, plan, etc.?** No
- d) **Is there a legal or biological threshold?** None known
- e) **Effects:** 1511 acres would be treated with timber harvest (including mechanical pre-commercial thinning) in the proposed action. This could cause direct mortality of toads in the project area. This potential mortality would likely be limited for 3 reasons. First, because of the widespread nature of toads, logging machinery would not affect entire areas, only skid trails, skyline corridors etc. not every acre of land in the project area, and likely only 1-2 units in the project area would be operating simultaneously. Second, the nocturnal nature of toads would reduce mortality risk because they are resting below ground during the day would be more protected from potential harm. Thirdly, toads use riparian areas and stream channels more often than upland areas (Schmetterling and Young 2008), thus streamside buffers would reduce impact risk to toads. Considering these risks, the widespread nature of boreal toads, streamside protections, the lack of wetlands/breeding areas affected, we conclude that direct impacts would be limited to a small number of individuals.

Indirectly, Changes in habitat from harvest or prescribed fire would likely have a minimal impact on toads because toads are able to use habitats ranging from moist forests to grasslands. Thus, indirect effects from habitat change caused by fire or harvest may slightly change how toads use habitat (precisely how is unknown), but these changes are expected to be immeasurable and insignificant.

- 7) **Cumulative Effects** – Similar effects occur with each project conducted by the Lolo National Forest and other non-federal landowners. Cumulative effects of past, future and off-site mechanical activities also likely cause a low level of mortality for toads. Overall, however, the west zone of the Lolo National Forest has a maximum of about 800 acres of timber harvest units ongoing on any particular day (e.g., activity is occurring within almost 20, 40-acre units). This area of disturbance represents about 0.08% of the LNF West Zone. Similar disturbances are occurring on small areas of state, corporate, and private land tracts throughout Mineral County. These mortality sources are likely absorbed by toads' very high reproductive rate (one pair may produce thousands of offspring each year), thus the impacts at the population level are not likely negative.
- 8) **Conclusion**
 - a) **What is determination?** May Impact Individuals and Habitat, but is Not Likely to Contribute to a Trend to Federal Listing.
 - b) **Rationale?**
 - i) The project may impact individuals because:
 - (1) Logging machinery may harm individuals in the uplands
 - ii) The impacts are unlikely to contribute to a trend to listing because:
 - (1) Toads don't concentrate in upland areas and only one or a few toads would be affected at once
 - (2) Toads are widespread and localized treatments wouldn't affect wider populations
 - (3) High reproductive rates in toads offset many limited sources of mortality

Coeur d'Alene Salamander

- 1) **Regulatory Framework** - Coeur d'Alene Salamanders are listed as a Sensitive species in the Northern Region and thus ensuring that viability is maintained is the management goal. No specific conservation measures, standards, or guidelines are offered in the Lolo Forest Plan (1986) and no monitoring is specified. The species is not known to move very far and therefore analyzing the effects of the project and cumulative effects within the Cruzanne project area is appropriate
- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area
 - b) **Temporal** – 2021 – 2035
- 3) **Population Status and Trend**
 - a) **Known** – Species absent from project area. No suitable habitat to survey
 - b) **Unknown** –
- 4) **Observations and Surveys** – 9/26/2018, walk-through of area, no observations, no suitable habitat observed in any are near where harvest or other activities are proposed.
- 5) **Habitat** – Lower Cruzanne Gulch may have some habitat for the species, but it was not surveyed because no treatments would occur within hundreds of feet of it.
- 6) **Conclusion**
 - a) **What is determination?** No Impact
 - b) **Rationale** – There is no habitat in the project area that would be affected, no observations, and impacts from the activities would not affect salamanders living outside of the project area. Additionally, if habitat were present, INFISH stream buffers of 50-300 feet would preclude management activities from impacting the species.

Fisher

- 2) **Regulatory Framework** - Fishers are considered a Sensitive Species by the USFS Northern Region and are managed to reduce impacts to the species and avoid contributing toward declining habitat or populations that would lead toward Federal Listing. The species is classified as a “Species of Concern” in Montana, having very limited habitat and/or potentially declining populations in the state; worldwide, it is classified as common, widespread, and abundant (Montana Natural Heritage Program, Field Guide website, 9/10/13). The USFWS concluded in a 2011 assessment of the species that federal listing of the species was not warranted but they recommend precautionary measures to protect the species (U.S. Department of Interior 2011). USFS management as a Sensitive Species and consideration in all projects in order to not decrease the viability or contribute to Federal Listing should maintain and improve conditions for the species.
- 3) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area
 - b) **Temporal** – 2015 - 2035
- 4) **Population Status and Trend**
 - a) **Known** – Fishers are widespread and population numbers are unknown although the USFS - RMRS is maintaining a database of all fishers from which genetic material has been collected and analyzed. The species is likely absent from project area.
 - b) **Unknown** – Fisher research is ongoing, specific habitat use and especially habitat need information is limited.
- 5) **Observations and Surveys** – Suspected track observation 5 miles north of the project area near the junction of the Hill 7 trail and road 16807. DNA was collected in Ward Creek (about 12 miles southeast) on a fisher in 2016. These observations indicate possible presence of fishers in the project area.
- 6) **Habitat** –
 - a) **Species needs** – Habitat use of the species is related to moist, mature forests with abundant structure in the form of large, down logs and more than one canopy layer. Research, including (Sauder and Rachlow 2014) indicate that a minimum of forest openings is most beneficial for fisher habitat. This conclusion conflicts with data (USFS, LNF, Superior RD) about historic range of variation which show about 35% of the land area in various portions of the Superior RD to have forests younger than 40 years because of natural wildfire in the past. Thus, the historic presence of fishers on the landscape must have coincided with some level of open forest stands up to approximately 35%. How these findings fit together is unknown. Some forest openings are probably normal within drainages used by fisher. However, the amount of time fishers actually use these stands is likely lower.
 - b) **Quality** – Habitat in the project area consists of drier forests on the South side of the mountain which likely are unused by fishers. On the north side of Cruzanne Mountain, more moist forests predominate, however, these stands originated in 1910 and have little complexity. These single-story stands serve as relatively poor fisher habitat. Some areas in the bottom of Packer and McManus Creeks and on the western side of the project area where spruce is more dominant or where lodgepole pine has died and is being replaced by other species are transforming into higher-complexity fisher habitat.

- c) **Quantity** – A relatively small proportion of the project area is good habitat (e.g 5-10% complex, overmature forest). Also, this area of Montana is on the periphery of the most highly suitable fisher habitat in the Northern Rockies (which is within Central Idaho). Thus habitats are more often marginal, and patches of habitat are generally smaller (note Fisher habitat model in (Olson et al. 2014). According to their model, about 890 acres (23%) of the project area has a high likelihood of serving as fisher habitat and 786 (21%) has a moderate likelihood.

7) **Effects of the Project**

- a) **Compliance with management requirements** – No specific management direction exists currently for fisher, see discussion of effects, below.

b) **Discussion of direct, indirect, and cumulative effects**

- i) **Direct Effects** – Project activities (roads and vegetation management) have an exceedingly low likelihood of killing or injuring a fisher because they are very unlikely to be using the project area. They also have the ability to simply move away from the noise, machinery, or vehicles and no further effects would ensue.

ii) **Indirect Effects** –

- 1) Regeneration harvest in high probability fisher habitat would remove some suitable habitat. This would occur in portions of units proposed for regeneration harvest (1, 2, 3, 21, 44, 45, 48, 61, 66, 67, 68) which total about 235 acres of high-probability habitat (Table 4). This would result in a reduction of available fisher habitat by converting mature, forested stands into seedling age class stands with limited forest cover which are unsuitable for fisher. This reduction of available habitat is likely to have a small negative impact on fisher use of the project area because these areas consist of only about 5% or less of a fisher home range. These areas would become useful habitat again to fishers in 40-80 years post-treatment. Additionally, 68 acres (high probability habitat) would be harvested with partial harvest. Although these treatments retain some level of habitat, they simplify forest structure and reduce canopy cover both of which reduce habitat quality for fishers.

2) Table 4. Effects of the Cruzanne Project on Fisher habitat.

Fisher Habitat	Existing habitat in Lolo NF (acres across all ownerships)	Existing habitat in project area (acres)	Proposed Regeneration Harvest	Proposed commercial thin/fuelbreak**	Percent Remaining
High Probability	273,616	890	235	68	66%
Medium Probability	432,995	786	319	42	54%
Total	706,611	1676	554	110	40%

**The precommercial thin and low severity prescribed fire units were removed from the impacts to fisher habitat because these units are young stands which are too small or dry habitats which do not support the characteristics of fisher habitat.

- 3) The low severity prescribed fire proposed would have minimal to no impact on fishers because this treatment type is restricted to drier stands of ponderosa pine and Douglas-fir which are not fisher habitat (see stand diagnosis in Project File). MTFWP conducted a distribution study of fishers in 2019 across their suspected range in Montana, no fishers were detected in or near the project area in this effort.

- 4) This reduction in habitat from both types of treatment would not impact viability because the best available habitat model data (Olson et al. 2014) identify only the area south of I90 (including much of central Idaho) as critical for maintaining a long-term population. The Cruzanne Project area is outside of the identified core area in Idaho, and does not have abundant fisher habitat compared with areas further southwest toward the core area (Figure Fisher Core Habitat, see project file). Its distance from the core habitat in central Idaho especially and from the more suitable areas southwest of I90 makes its value in maintaining a viable population very low. The project area also contains only about 0.02% of the fisher habitat on the Lolo National Forest.

i) **Cumulative Effects**

- (1) **Cumulative Effects area and measures:** Cumulative effects could be any activities occurring within about 10 miles of the Cruzanne project area that may reduce habitat for fishers. Because this entire area east/north of I90 is outside of the mapped core range of fishers, only cumulative effects reducing forest cover or forest complexity that are very large (5,000-10,000 acres or more) are considered. This would include only large timber or salvage operations.
- (2) **Why is it important to the species?** These activities could limit the ability of the area to serve as a part time/low density refugia for fishers outside of the core range. Large fires were not included because fires have been observed to reinvade and use burned areas quite soon (within 5-10 years) after fires.
- (3) **How was it measured and quantified?** These activities were identified through USFS project proposals. Future activities on private lands are unknown but would not cover a large area because land ownership around the project area is mainly NFS.
- (4) **Is the measure required by law/policy, plan, etc.?** No
- (5) **Is there a legal or biological threshold?** None known
- (6) **Cumulative Effects:** Only one vegetation management project (Salty Borax) is likely to occur within the cumulative effects area in the next 10 years. This project could harvest timber to a scale approaching 5,000-10,000 acres which could cause another small decrease in available fisher habitat. This project also, would be on the periphery of the fisher range mapped by (Olson et al. 2014) and thus not have significant population-level impacts leading toward federal listing. High vehicle travel on I90 would also cause a high likelihood of mortality with cars over time. How much this mortality would affect populations is unknown.

5) **Conclusion/**

- a) **What is determination?** May impact individuals or habitat, but not likely to cause a trend leading toward federal listing.
- b) **Rationale?** The project may have an impact on habitat through timber harvest, but this impact is not expected to rise to a level where a population-level change would occur: 1) because only a portion of habitat would be affected (40%), and 2) this would occur far from the core range of the species in central Idaho.

Flammulated Owl

- 1) **Regulatory Framework** - The flammulated owl is listed as a Sensitive species in the Northern Region and thus ensuring that viability is maintained is the management goal. No specific conservation measures, standards, or guidelines are offered in the Lolo Forest Plan (1986) and no monitoring is specified. The species is classified as a “Species of Concern” in Montana (Montana Natural Heritage Program Web, accessed 2/26/19). According to the Montana Natural Heritage Program the species is currently considered globally uncommon but not rare and within Montana, it is potentially at risk, but may be locally abundant.
- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area
 - b) **Temporal** – 2020 - 2035
- 3) **Population Status and Trend**
 - a) **Known** –The species is likely absent from project area.
 - b) **Unknown** – Exact trend information is unknown, and the MT Natural Heritage Program has no information on population trends.
- 4) **Observations and Surveys** – Several walk-throughs of the area occurred in late 2018 and 2019. Flammulated owls have been detected during surveys at several locations on the Superior Ranger District but not near the project area. The project has not been surveyed due to lack of suitable habitat.
- 5) **Habitat**
 - a) **Species needs** – Habitat use of the species is tied to dry, mature/large ponderosa pine forests. Often these areas have some Douglas-fir component, but uniform, younger Douglas-fir forests are not considered suitable habitat.
 - b) **Quality** - NA
 - c) **Quantity** – No habitat is present in the project area.
- 6) **Conclusion**
 - a) **What is determination?** No Impact
 - b) **Rationale?** No habitat is available in the project area and thus the species or its habitat would not be affected. The impacts of the project would not extend to any habitat around the project area because only noise and log haul would occur beyond the project area. Neither of these is considered a risk to flammulated owls in any season.

Gray Wolf

- 1) **Regulatory Framework** – Wolves were removed from the Endangered Species List in 2011 (U.S. Department of Interior 2009). Currently, because wolf numbers have increased over 600% in last 15 years (Bradley et al. 2015), and direct mortality is managed by Montana Department of Fish, Wildlife, and Parks, only very substantial and widespread changes in mortality or prey availability would cause a trend toward federal listing. Currently the wolf is listed as a Sensitive species in the Northern Region and thus ensuring that viability is maintained is the management goal. No specific conservation measures, standards, or guidelines are offered in the Lolo Forest Plan (1986) and monitoring is conducted by MTFWP. The species is classified as common, widespread and secure worldwide, and apparently secure but may be declining in parts of its range in Montana (Montana Natural Heritage Program, Field Guide website, 9/19/19).
- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area
 - b) **Temporal** – 2020 - 2035
- 3) **Population Status and Trend**
 - a) **Known** – Wolf numbers are monitored by MTFWP, and have been leveling off after several years of increase. Wolves are currently hunted and trapped legally by MTFWP and managed as other game species in Montana. Currently, MTFWP allows each licensed individual to harvest up to 5 wolves with either hunting or trapping. In 2017, a total of 13 wolves were harvested from Hunting District 200 (which includes the project area), and 21 were harvested in 2016. Thus, a certain level of mortality is anticipated and desired for maintenance of populations at a level acceptable to the State of Montana.
- 4) **Observations and Surveys** – During walk through surveys of the area in 2018 and 2019, wolf sign was observed but no wolves.
- 5) **Habitat**
 - a) **Species needs** – Habitat needs center mainly around an adequate prey base of mainly ungulates, although other species can replace ungulates during some periods of time. Excessive mortality (e.g. poisoning and bounty hunting) can result in non use of areas where vulnerability to humans is high.
 - b) **Quality** – Moderate to high because of abundant deer and elk, however, the area is small and only likely to provide for a portion of a wolf pack needs through a year.
 - c) **Quantity** – The entire project area could be used.
- 6) **How were the effects of the project on the species measured?** Would the project affect prey supply, den sites, or road densities/human access. Would the project cause any noteworthy mortality or effects similar in magnitude to an annual harvest of 10-20 wolves?
 - a) **Is the measure required by law/policy, plan, etc.?** Not currently.
 - b) **Is there a legal or biological threshold?** No
- 7) **Direct and Indirect Effects**
 - a) **Existing condition/No Action**
 - i) The proposed action would not change conditions for wolves. The proposed action would not change the availability of ungulates because their home ranges are much larger than 3790 acres. The proposed action would impact no den or rendezvous sites because these sites are monitored by MTFWP and none are known in the area. The proposed action would not cause any changes in road densities that could affect wolf mortality. It is remotely possible that wolves moving through the project area during

a project workday could be disturbed and move away. This movement is unimportant because moving ½ mile would bring wolves far from the influence of the project and wolves normally move several miles in a day. The changes in habitat with harvest are also unlikely to have any effects on wolves because they can use open and forested lands in prey is available. Thus, activities in the project area are highly unlikely to affect any wolves except for a remote possibility of disturbance and ample habitat exists around the project area. This would result in likely no mortality, compared to the 10-20 removed in the Hunting district each year.

8) Cumulative Effects

- i) Because the direct and indirect effects are undetectable, no cumulative effects are anticipated.

9) Conclusion

- a) **What is determination?** May Impact Individuals or Habitat, but will not Cause a Trend Toward Federal Listing
- b) **Rationale?** Although unlikely, one or more incidents of disturbance of wolves may occur. Wolves could easily move away from harvest activities and would not be further affected.

Harlequin Duck

- 1) **Regulatory Framework** - The harlequin duck is listed as a Sensitive species in the Northern Region and thus ensuring that viability is maintained is the management goal. No specific conservation measures, standards, or guidelines are offered in the Lolo Forest Plan (1986) and no monitoring is specified. The species is classified as a “Species of Concern” in Montana, having very limited habitat and/or potentially declining *breeding* populations in the state; worldwide, it is classified as apparently secure, but may be declining in parts of its range (Montana Natural Heritage Program, Field Guide website, 2/26/19).
- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area (adjacent areas within 50-100 meters considered as well)
 - b) **Temporal** – 2021 - 2035
- 3) **Population Status and Trend**
 - a) **Known** –
 - b) **Unknown** – Except for general trends identified by MTNHP, population status in Montana is unknown.
- 4) **Observations and Surveys** – No surveys have been conducted along the St Regis River although MT Natural Heritage Program reports observations on the Clark Fork River and on Twelvemile Creek.
- 5) **Habitat** –
 - a) **Species needs** – Habitat use of the species is nearly exclusively tied to larger, fast-flowing productive streams. These areas are used between April and August each year for breeding.
 - b) **Quality** – With the exception of the St. Regis River, the streams in the project area are likely too small to support harlequin duck use. The St Regis River is likely moderate to good habitat because of its size and relatively clean water. However, the lack of streamside vegetation in some areas likely limits habitat.
 - c) **Quantity** – Habitat is present along the river in the project area for about 4 miles.
- 6) **Effects Discussion**
 - a) Prescribed fire, road construction, and timber harvest are all proposed for the south side of Cruzanne Mountain, above the St Regis River. Interstate 90, flows along the St Regis River for the entire length of the project area. Proposed treatment activities, however, would occur >300 feet from the river which would likely cause almost no disturbance to potential duck use along the river in comparison with the 24 hour use of the Interstate highway. Because the species would use only a few meters of terrestrial habitat along the river, treatments would not affect habitat or habitat use either. Thus, no disturbance or habitat change would occur.
- 7) **Conclusion**
 - a) **What is determination?** No Impact
 - b) **Rationale?** Because no actions would occur within 300 feet of the St Regis River, no Impacts are anticipated.

Northern Bog Lemming

- 1) **Regulatory Framework** - The northern bog lemming is listed as a Sensitive species in the Northern Region and thus ensuring that viability is maintained is the management goal. No specific conservation measures, standards, or guidelines are offered in the Lolo Forest Plan (1986) and no monitoring is specified. The species is classified as a “Species of Concern” in Montana, having very limited habitat and/or potentially declining populations in the state; worldwide, it is classified as between “Common, widespread and abundant” (Montana Natural Heritage Program, Field Guide website, 2/26/19).
- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area
 - b) **Temporal** – 2021 - 2035
- 3) **Population Status and Trend**
 - a) **Known** –
 - b) **Unknown** – Little is known about population trends for this species. Habitat is extremely restricted, and the species has not been observed in Mineral County or on the Superior RD.
- 4) **Observations and Surveys** – None.
- 5) **Habitat** –
 - a) **Species needs** – Habitat use of the species is nearly exclusively tied to wet bog and fen habitats which are relatively uncommon in western Montana and absent from the project area.
 - b) **Quality** - NA
 - c) **Quantity** – No habitat is present in the project area
- 6) **Conclusion**
 - a) **What is determination?** No Impact
 - b) **Rationale?** No habitat is available in the project area, the species is not present, and therefore no impacts are anticipated.

Northern Leopard Frog

- 1) **Regulatory Framework** - The northern leopard frog is listed as a Sensitive species in the Northern Region and thus ensuring that viability is maintained is the management goal. No specific conservation measures, standards, or guidelines are offered in the Lolo Forest Plan (1986) and no monitoring is specified. The species is classified as a “Species of Concern” in Montana, having extremely limited habitat and rapidly declining populations west of the Continental Divide in Montana; worldwide, it is classified as between “Common, widespread and abundant” (Montana Natural Heritage Program, Field Guide website, 2/26/19).
- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area
 - b) **Temporal** – 2021 - 2035
- 3) **Population Status and Trend**
 - a) **Known** – Northern leopard frogs are extremely rare in Western Montana and the species is nearly extirpated. The species is absent from project area.
- 4) **Observations and Surveys** – None.
- 5) **Habitat** –
 - a) **Species needs** – Habitat use of the species is exclusively tied to large bodies of water with emergent vegetation. These areas are used throughout the year and are not present in or near the project area.
 - b) **Quality** - NA
 - c) **Quantity** – No habitat is present in the project area
- 6) **Conclusion**
 - a) **What is determination?** No Impact
 - b) **Rationale?** No habitat is available in the project area and therefore the species or its habitat would not be changed by the project.

Peregrine Falcon

- 1) **Regulatory Framework** - The peregrine falcon is listed as a Sensitive species in the Northern Region and thus ensuring that viability is maintained is the management goal. No specific conservation measures, standards, or guidelines are offered in the Lolo Forest Plan (1986) and no monitoring is specified. The species is classified as a “Species of Concern” in Montana, and considered potentially at risk in Montana; worldwide, it is classified as “apparently secure but may be declining in parts of its range” (Montana Natural Heritage Program, Field Guide website, 2/26/19). The species was delisted from federally threatened status in 2000 and populations in Montana have been steadily increasing since (Montanaperegrine.org, Accessed 2/26/2019).
- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area
 - b) **Temporal** – 2021 - 2035
- 3) **Population Status and Trend**
 - a) **Known** – Peregrine falcons are increasing steadily in population since the discontinuation of the use of DDT. They are monitored by the Montana Peregrine Institute statewide each year.
- 4) **Observations and Surveys** – None.
- 5) **Habitat** –
 - a) **Species needs** – Habitat use of the species is focused on the areas along large rivers with cliffs for nesting. Ducks and other smaller birds are hunted throughout the spring summer and fall. Migration southward occurs in late fall.
 - b) **Quality** – The St Regis River is likely little used because of its small size. Also, the project area is likely unused by the species because of its forested nature and lack of nesting cliffs.
 - c) **Quantity** – No habitat is likely present in the project area
- 6) **Conclusion**
 - a) **What is determination?** No Impact
 - b) **Rationale?** Because the project area is not habitat for the species and is not used by the species, No Impacts are anticipated.

Townsend's Big Eared Bat

- 7) **Regulatory Framework** - The Townsend's big-eared bat is listed as a Sensitive species in the Northern Region and thus ensuring that viability is maintained is the management goal. No specific conservation measures, standards, or guidelines are offered in the Lolo Forest Plan (1986) and no monitoring is specified. The species is classified as having very limited habitat and/or potentially declining populations in the state, worldwide, it is classified as between "apparently secure" and "potentially at risk" (Montana Natural Heritage Program, Field Guide website, 2/26/19).
- 8) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area
 - b) **Temporal** – 2021 - 2035
- 9) **Population Status and Trend**
 - a) **Known** – The species has been detected in several caves and mines in Montana, the closest being the Lower Thompson River area.
 - b) **Unknown** – Very little is known about the species and white-nose syndrome disease is having dramatic negative impacts on bats nationwide.
- 10) **Observations and Surveys** – None.
- 11) **Habitat** –
 - a) **Species needs** – Habitat use of the species includes caves, rock crevices and mines for roosting, wintering and maternity areas. Foraging occurs over forests and water bodies.
 - b) **Quality** - NA
 - c) **Quantity** – No underground habitat is present in the project area. If the area were used for foraging, no changes would likely result in its quality for the species.
- 12) **Conclusion**
 - a) **What is determination?** No Impact
 - b) **Rationale?** The underground habitats are the areas where bats are most sensitive. These are not present in the project area and would not be affected. If foraging occurs above the project area, a change in tree density would not change the ability of the species to forage there.

Wolverine

- 1) **Regulatory Framework** - In February 2013, the U.S. Fish and Wildlife Service listed wolverine as a proposed threatened species (U.S. Department of Interior 2013b). They concluded that while wolverines appear stable to expanding, the primary threats to the contiguous U.S. population are the risk of eventual habitat and range loss due to climate warming, with secondary threats from trapping/wolverine harvest, with potential threats from disturbance associated with human developments [e.g. houses and ski areas] and transportation corridors [e.g. interstate highways and high volume secondary highways]), and loss of genetic stochasticity due to isolation between snowy habitats caused by climate change (U.S. Department of Interior 2013b). The USFWS specifically mentions that forestry-related management practices are not likely a factor contributing to the decline (pp 7879). Timber management, winter elk security, thermal cover, or over-the-snow uses managed by the Forest Service were not identified as treats to the U.S. population (pp 7878-79). On August 13, 2014, after considering the best available science, the USFWS declared that listing the wolverine as a threatened species was not warranted because they determined the effects of climate change are not likely to place the wolverine in danger of extinction now or in the foreseeable future (U.S. Department of Interior 2014). Although the USFWS acknowledged that climate change effects are expected to result in loss of some wolverine habitat, they noted that there is no available data to inform whether or how these projected impacts may affect the viability of wolverine populations. In addition, there is evidence that the population is increasing and that wolverines are expanding both within areas currently occupied as well as suitable habitat not currently occupied (pp 47536). Thus, the USFWS withdrew its proposed listing rule. The U.S. Fish and Wildlife Service's determination was challenged in Court. In April 2016, the District Court of Montana ruled that the U.S. Fish and Wildlife Service must reconsider protections for wolverines under the Endangered Species Act. Currently, the species is proposed for listing under ESA.

The wolverine is also a Sensitive species in the Northern Region. There are currently no Lolo National Forest Plan (1986) standards for the management of wolverine habitat and no conservation plan or strategy has been adopted. The species is, however, listed as a Sensitive species in the Northern Region and thus ensuring that viability is maintained is a management goal.

- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area
 - b) **Temporal** – 2021 - 2035
- 3) **Population Status and Trend**
 - a) **Known** – Wolverines are widespread and population numbers are unknown although the USFS - RMRS is maintaining a database of all wolverines from which genetic material has been collected and analyzed. The species is likely absent from project area.
 - b) **Unknown** –
- 4) **Observations and Surveys** – none.
- 5) **Habitat** –
 - a) **Species needs** – Habitat use of the species is nearly exclusively tied to areas where spring snow is persistent into April and May (Copeland et al. 2010). These areas are used throughout the year even when snow is absent.

b) **Quantity** – No habitat is present in the project area (R1 snow map), the area is lower elevation.

c) **Quality** - NA

6) Conclusion

a) **What is determination?** No Impact

b) **Rationale?** There is no habitat available in or around the project area.

DRAFT

Management Indicator Species

Northern Goshawk

- 1) **Regulatory Framework** - The northern goshawk is designated a management indicator species for natural old growth forests on the Lolo National Forest although no habitat or population management standards are included in the Lolo National Forest Plan (1986). The Plan states that these species will be monitored because they are sensitive to management actions or are of special concern (pp IV-16). Old growth is not present in the analysis area although there is 589 acres of potential old growth.
- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area
 - b) **Temporal** – 2021 - 2035
- 3) **Population Status and Trend**
 - a) **Known** – Goshawks are abundant and widespread throughout the Lolo National Forest and western Montana.
- 4) **Observations and Surveys** – Goshawks have been observed on at least 2 occasions within the project area (2019).
- 5) **Habitat**
 - a) **Species needs** – Goshawks use mature to old growth forests for nesting in most cases but use a variety of forested and open stands for foraging. Alpine and subalpine habitats are rarely used.
 - b) **Quality** – High, the project area consists of closed-canopy forest with larger trees and has abundant structure to provide prey species upon which to forage. However, the area has no areas of early successional habitats identified as a portion of foraging habitat (Reynolds, Graham and Reiser 1992). Goshawks likely use the area for nesting and foraging.
 - c) **Quantity** – The entire project area could be used. The project area is about the size of 75% of one goshawk pair home range. The project area consists of:

	Acres	% of Project area	Acres recommended per home range area (from (Brewer et al. 2009)
Nesting Habitat	1596	42	240 (up to 6-40-acre stands)
Foraging Closed/Forested	1947	51	3032 (80% of project area see table 3 pp14) – Note – nesting habitat also functions as Foraging Closed (totals about 93% of project area
Foraging Open	216	6	758 (20% of project area – see table 3 pp14)

To better balance recommendations for goshawk habitat specified in Brewer et al. (Brewer et al.) and internal citations, increasing open, foraging habitat by over 500 acres would be appropriate. Also, decreasing nesting habitat by intermediate harvest and in turn increasing forested foraging habitat by about 1300 acres would easily maintain recommended forest conditions for goshawks.

- 6) **How were the effects of the project on the species measured?** The project effects were discussed in relation to whether the project would continue to provide sufficient nesting habitat and a mix of forest successional stages to support goshawks in the future.
- a) **Is the measure required by law/policy, plan, etc.?** Not currently, following the guidelines in Brewer et al. (2009) would document that goshawks could easily continue to use the area. If post-treatment conditions different a small proportion from those recommendations (e.g. 10%), conditions could still likely support goshawks because they are a forest generalist species.
 - b) **Is there a legal or biological threshold?** No
 - c) Would sufficient nesting habitat remain (well-distributed) after treatment? Because the area is smaller than the home range of 1 goshawk pair (5000 acres), retaining 1 or more times the nesting needed for a pair would be sufficient here. One pair needs about 240 acres of nesting habitat which could be divided into up to 6, 40-acre stands.
 - i) The proposed action would leave nearly 20, 40-acre stands suitable for nesting. As the remaining trees grow in partially harvested areas, their canopies will increase somewhat to fill the remaining space increasing nesting habitat even more. Increasing sunlight to the forest floor would also increase the shrub and herbaceous plant components in the stand. These plants support prey species such as small mammals and songbirds which are forage for goshawks. Even though much nesting habitat would be treated and converted to non-nesting, enough nesting habitat should remain to easily support goshawks in the project area.
 - d) Would the balance of successional stages in the area be similar to those recommended in Brewer et al (2009), Table 3?
 - i) Currently, nearly the entire area is mature, close-canopied forest without any openings for use by foraging goshawks. The proposed action would increase open areas and young forests to a higher proportion. Brewer et al. (2009) and Reynolds et al. (1992) recommend up to about 40% of an area consist of younger forest age classes. The proposed treatments would treat about 25% of the area with regeneration harvest resetting the successional stage to the seedling stage. This area would fill in the missing sapling and pole successional stages in the coming decades better balancing the mix of forest conditions in the project area for goshawks.
 - e) No nests are currently known, so nest site disturbance is always possible, but currently unlikely. If nests are detected, the wildlife biologist would be informed and maintenance of some nesting habitat in the area would likely occur, as well as a delay in activities around the nest if active.
- 7) **Cumulative Effects**
- i) The direct and indirect effects would maintain sufficient goshawk habitat. No additional activities are planned nearby that would remove large quantities of goshawk habitat.
- 8) **Conclusion**
- a) **What is determination?** May Impact Individuals or Habitat, but will not Cause a Trend Toward Federal Listing
 - b) **Rationale?** Habitat will change, nesting habitat would be lost, and foraging habitat would move toward a more appropriate balance of successional stages. However, sufficient nesting habitat would remain, and any direct mortality is unlikely.

Elk

- 1) **Regulatory Framework** - The elk is a Management Indicator Species for the Lolo National Forest used to gauge impacts on all big game species (Lolo NF Plan, 1986). The health of its population was supposed to indicate the condition of populations for other wildlife species using similar habitats on the Lolo National Forest. Elk use a large variety of habitats including many of the younger successional stages created after fire or timber harvest. Because of wide habitat use and other impacts (e.g. hunting, diseases, predation, winter weather severity, winter use on other land ownerships), elk population fluctuation may not reflect habitat conditions on the Lolo National Forest very well. Montana Department of Fish, Wildlife, and Parks' goals for the elk population in the Lower Clark Fork Elk Management Unit (of which the Cruzanne Mountain area is a portion) include maintaining elk numbers, a diverse bull age structure and a variety of hunting opportunities (Montana Fish Wildlife and Parks 2015). This requires secure habitat areas in summer, controlling vulnerability from hunting, and providing winter range sufficient to support elk when little forage is available. None of the project area is identified by the Lolo National Forest Plan (1986) to be managed specific for elk habitat values.
- 2) **Analysis Area** – Project area
 - a) **Spatial** – 3790-acre project area
 - b) **Temporal** – 2021 - 2035
- 3) **Population Status and Trend**
 - a) **Known** – The project area is within Hunting District 200 and elk numbers are monitored by MTFWP and fluctuate some each year. There have been no noticeable up or downward trends in recent years and hunting regulations have remained relatively stable.
- 4) **Observations and Surveys** – Several walk-through surveys of the area, no observations, elk sign was observed in several locations. Elk wallows were also observed during several USFS surveys of the area.
- 5) **Habitat** –
 - a) **Species needs** – Elk use a variety of habitats including open and closed forest stands. A balance of the two provides both cover and forage values for the species.
 - b) **Quality** – High (for summer range), the project area has lesser amounts of disturbance because of the limited human population nearby. The area serves mainly as calving, summer, and transitional range in fall, winter use does not occur except of very low snow years. The highest priority in managing summer range is to produce and maintain high quality forage (see (Ranglack et al. 2014), which can be done through opening dense forest stands and allowing increased grasses and shrubs to grow. Which can be done through timber harvest, but prescribed fire (after harvest or instead of harvest) increases forage quality because of the nutrients added to the soil from the fire ash and the removal of dead material.
 - c) **Quantity** – The entire project area is used by elk throughout most of the year (little winter use).
- 6) **How were the effects of the project on the species measured?** Would the project affect habitat effectiveness (summer range forage quality and human access in summer) or vulnerability (human access/hunting pressure in fall). Winter range suitability was not considered.

- a) **Why was this measured?** The Montana Elk Logging Study (Lyon et al. 1982), (Christensen, Lyon and Unsworth 1993), and Ranglack et al. (2014) identify these values as the most important for elk management.
- b) **Why is it important to the species?** These attributes of habitat consider food, security, and mortality in a year-round context.
- c) **How was it measured and quantified?** We considered acres of closed canopy forest converted to openings (regeneration harvest), acres of closed canopy forest where canopy was reduced (partial harvest and mixed severity prescribed fire), and acres where forage was improved (low severity prescribed fire). These treatments would increase forage and benefit elk up to the point where the project area becomes so open that vulnerability in hunting season is very high. We also considered whether open roads would increase and whether ATV/UTV access (legal and illegal) would increase. We also considered the smaller context of the project (less than 10% of Montana Hunting District 200).
- d) **Is the measure required by law/policy, plan, etc.?** Not currently.
- e) **Is there a legal or biological threshold?** No

7) Effects discussion

Table – Elk

	Existing Condition/No Action (acres)	Additional with the Proposed Action (acres)	Total
Forest Openings (acres open or regen harvest)¹	274	981	1255
Open Forest Stands (acres partial harvest or mixed severity fire)²	191	530	721
Acres of forage improvement (low severity fire)	0	1161	1161
Miles of open motorized route in the project area (includes portions of I90)	19.7	19.7	19.7

1 – VMAP – lifeform=herb, shrub, or spveg

2 - VMAP – TreeCanopy = 10-25%

- a) **Existing condition/No Action** – Of the 3790 acres in the project area, only about 7% of it is open vegetation types and most of these areas are actively cleared areas along I90, private lands or other roads that are of limited use for elk foraging. A few open, forested stands exist, but these are a minor component of the area (5%). Open roads, although apparently many miles, most of these are along the edges of the area and include both directions of I90 and the RR grade (9 miles), the Packer Cr rd (3.4 miles) and several

private roads with private vehicle traffic. No drivable roads are present into the center of the project area.

b) Proposed Action

Open areas would increase with the proposed action from about 7% to about 33% of the area. This would increase forage availability, but also increase vulnerability to hunters during the general rifle season. Coupled with the partial harvest proposed, about 51% of the area would be much more open stands ranging from very few trees per acre (5-10) to thinned stands with many more trees, but high visibility for hunters. Harvest was planned to provide adequate cover for elk, although reduced from current levels. First, known areas with high amounts of elk use were omitted from harvest, especially high use summer range areas. Second, as the LNF Plan requires, all wallows were protected with a 5-8 chain (300-500' buffer). Third, post-treatment forested areas were planned in a spread-out manner around the project area (e.g. west edge of the area, Cruzanne Gulch, and northeast edge of the area). Fourth, the project would be divided into 3 subunits (South, West, and East) to avoid high levels of disturbance across the whole area at once. Lastly, a large patch of partial harvest was planned into the center of the project area to avoid continuous open forest/cut-over conditions over a wide area.

The increased open area would likely result in an increased number of elk killed during the next 10-15 rifle seasons; this could total an extra 1-3 brow-tined bulls each year. Alternatively, the increased available forage (from both harvest and prescribed burning) would improve body condition of 10-30 cow elk during that same time period resulting in a greater number of calves to sustain the population. These provisions, in total, would adequately maintain the elk population in the area into the future.

8) Cumulative Effects

i) Within HD 200, limited harvest has occurred, and no large fires have occurred in the west end of the Superior District for several years and therefore the forest openings caused by the project are not anticipated to cause any cumulative effects. Additional road use and hunting pressure/vulnerability may add to increases in open or passable (by walking/bicycles) roads reconstructed in recent years for projects such as summer trails and 12-tamarack on the Superior District. This combination may also increase vulnerability a small degree. Because most of these routes are closed in summer, habitat effectiveness (habitat use in summer) would change very little if at all.

9) Conclusion

- a) **What is determination?** The project would maintain sufficient habitat for elk to continue to provide hunting and viewing opportunities anticipated in the Lolo Forest Plan.
- b) **Rationale?** Increase vulnerability is reduced through project design and increased forage helps to offset increases in vulnerability to maintain a stable population through time.

Forest Plan Standards Related to Elk

- 4. Conflicts between livestock and big game will be resolved so big game are allocated the forage required to meet their needs. Domestic livestock will be allowed to utilize any

forage surplus not conflicting with the planned expansion of big-game populations. Reductions in livestock numbers will be avoided if possible, but will be acceptable to meet management goals.

Use by domestic livestock is not a part of this project and thus this standard is not applicable.

21. Wildlife features such as wallows, mineral licks, and seeps will be protected by employing the following standards, which are subject to change over time, but which reflect the current state of knowledge.

Within 5 chains (330 feet) of actively used or recently used wallows, licks, seeps, etc., cover status should be maintained with no more than a 30% reduction in existing or normal tree canopy. For an additional 3 chains (198 feet) around the feature, tree canopy removal should be limited to 50%. The feature should not be isolated within a larger clearcut unit. Cutting unit boundaries should be adjusted so that the feature is contiguous to forest cover. Skidding equipment should not be permitted within 2 chains of the feature and logging debris should be removed from all trails leading to the feature. It should be recognized that timber management may be necessary in or near such features to maintain associated values. Harvest entries should be spaced at least 20 years apart and made to improve or maintain the feature.

All wallows, licks, and seeps identified during planning are mapped. These features are protected as described above during project planning and layout. Additional features identified are also mapped and protected as they are encountered. However, seeps with limited wildlife use, especially those along roads were only protected with a minimum buffer (50') because they were likely caused by the cutting of the original road. A proposed road that encountered a wallow was canceled due to the presence of the wildlife feature.

22. The Forest wildlife biologist will examine and recommend vegetative objectives for managing and protecting all winter range whenever activity is proposed within it.

The activities on the North side of Cruzane Mountain are not within winter range. Activities on the south side are within winter range, although not the highest use winter range because of deep snows in the area. The main use of the project area winter range habitats are either late fall, early spring, or winters with low snowfall. Project activities would enhance winter range values by producing more forage, which is intermixed and surrounded by areas of tree canopy. Also, the project proposal would maintain the project area in a condition without open road access to maintain habitat security year-round.

23. The document "Coordinating Elk and Timber Management" (Final Report of the Montana Cooperative Elk-Logging Study, 1970-1985) which summarizes the results of 15 years of interagency elk/logging research, will be used as a basic tool for assessing the effects of timber harvest upon elk habitat, and for making decisions that affect the

overall big-game resource. When considering activities in lands with intermingled ownership, the effects of activities by all landowners on the big-game resource will be analyzed. Efforts will be made to develop mutually acceptable project designs with other landowners that minimize impacts on wildlife. In some cases, activities on National Forest System land will be deferred or redesigned to mitigate effects of private land management practices.

The principles in Coordinating Elk and Timber Management were used in the design of the Cruzane project, including road management and winter range management. The project design should be able to contribute to maintaining or increasing elk numbers in the Hunting District.

26. Provide a variety of hunting recreation opportunities by using project planning and road management to assist the Montana Department of Fish, Wildlife, and Parks in meeting their goal of maintaining long hunting seasons with minimum restrictions.

MTFWP's long hunting seasons with fewer restrictions have been in place for many years now and the proposed project activities would not likely change them. Changes in open roads would not occur, the project would increase forage availability in and quality in summer, possibly benefitting the wider hunting district. Although hunting season vulnerability (for 5 weeks) would increase because of forest openings (mainly for brow-tined bulls), the much longer-term forage benefit would affect the entire herd unit in a positive manner.

- 52 (c) On highly productive big-game summer range, open road densities of existing roads will be restricted to a maximum of 1.1 miles of road per section and all new roads, except arterials, will be closed year-round (average values calculated over designated herd-unit

No changes in open road densities would occur with the project and open road densities are not proposed to change.

Pileated Woodpecker

- 1) **Regulatory Framework** - The pileated woodpecker is a Management Indicator Species for the Lolo National Forest used to gauge impacts on mature old growth forests with limited management (Lolo NF Plan, 1986). The health of its population was supposed to indicate the condition of habitats for other wildlife species that use components of old growth such as large snags and mature, decaying trees.
- 2) **Analysis Area** – Project area
 - a) **Spatial** –3790-acre project area
 - b) **Temporal** – 2021 - 2035
- 3) **Population Status and Trend**
 - a) **Known** – The pileated woodpecker is considered widespread and common globally (G5), but a species of concern in Montana because of its limited or declining numbers or habitat (S3) (Montana Natural Heritage Program, accessed 2/25/2019). The species, however, is apparently reasonably common on the Lolo National Forest according to the Northern Region Landbird Monitoring Program (see Figure Pileated in Project File).
- 4) **Observations and Surveys** – The species has been observed within the project area in 2018 and 2019 south of Cruzanne Gulch.
- 5) **Habitat** –
 - a) **Species needs** – Pileated woodpeckers use a huge variety of habitats including open and closed forest stands, agricultural and rural areas and older forests. Samson's 2006) habitat model focuses on the presence of trees 10" or larger in diameter for foraging and 15" and larger for nesting.
 - b) **Quality** – high, the project area has many larger trees ranging from larch trees on the top and north side of the mountain to ponderosa pine on the south aspects. Larger spruce and fir trees are present along Packer Creek. A nesting area may have been observed near Unit 8 because of aggressive goshawk behavior during the nesting season. This will be monitored in the coming years.
 - c) **Quantity** – The entire project area could be used.
- 6) **How were the direct and indirect effects of the project on the species measured?**
 - a) Direct effects on individuals would include only disturbance or displacement of 1-4 birds from a stand. The birds would likely move to an adjacent stand and continue foraging. After being exposed to logging machinery for some time, birds may become somewhat habituated and return to closer distances from machinery.
 - b) **Would the project affect the distribution and abundance of larger trees?**
 - i) Larger trees (>15" dbh) were the key habitat component identified in the Northern Region habitat model for the species (Samson 2005 and pileated woodpecker in the Northern Region, Samson, 2006). Larger, dead trees provide carpenter ants (a primary food source) and enough space to create roosting or nesting cavities. These trees can be used individually for foraging in areas with very few large trees, or in areas with a larger density of high-quality foraging trees, pileated woodpeckers may select as nesting areas. These attributes were discussed qualitatively because quantitative means were unavailable and because of the insignificant context of the project (small size in relation to a home range of thousands of acres).
 - ii) Larger trees would be reduced in number across the project area, although average size may increase because smaller trees are removed, and larger trees are retained. Larger trees would, however, be retained throughout the project area although in

much lower numbers (See treatment photos in project file). Although nesting-sized trees (>15") would still be abundant in the area, some level of suitability for the species would be reduced because of fewer trees.

c) Would the project reduce nesting habitat?

- i) Nesting habitat is defined in Samson (2006) as simply areas with trees >15" dbh. Although these are likely required, observations of pileated woodpecker nesting use usually occur in denser forests with these large trees and an abundance of trees used by carpenter ants. One such area was observed on the ridge south of Cruzanne Gulch.
- ii) The area observed with likely pileated nesting habitat would be mainly protected by the earlier dropping of units within Cruzanne Gulch. The harvest and burned occurring adjacent to this area may cause the woodpeckers to shift habitat use into Cruzanne Gulch more, but likely not cause abandonment of the area.

7) Cumulative Effects

- i) Because habitat would continue to be provided in the most heavily-used part of the project area, no decrease in the population is anticipated. Some reduction in use of the harvested portions of the project is expected, but habitat would still remain. Samson (2006) identifies habitat as the presence of 10-15" dbh or larger trees and this would remain throughout all of the project area after treatment. No other large projects or activities have reduced cover of larger trees in this portion of the Superior District thus no other cumulative effects are anticipated.

8) Conclusion

- a) **What is determination?** The project would protect heavily used habitat areas and continue to provide some level of habitat throughout.
- b) **Rationale?** Above.

Migratory Birds

In accordance with Executive Order 13186 (2001), Federal agencies are required to minimize negative effects to migratory birds. Additionally, the Migratory Bird Treaty Act of 1918 protects species from hunting and overexploitation. "Migratory birds" include over 100 species ranging from ducks and aquatic birds to grassland and high-elevation forest-dependent species. Because this species group is so diverse, precise predictions about potential effects are nearly impossible, and both "no action" and any proposed actions have effects on the relative abundance of various species, essentially any action would benefit individuals of some species while harming individuals of other species. Thus, the Northern Region Sensitive Species Listing Process is critical at identifying species which may need more management attention than others because of rareness or changes in habitat abundance. For other migratory bird species, maintaining a mixture of vegetation types and age classes can help provide for a diversity of species through time. The project will maintain this mix of species and age classes and actually return the project area to a condition (more open, more ponderosa pine) that better matches with the historical condition and therefore would benefit the largest array of migratory birds.

Snags

Table Snags 1: Snag Densities required by Lolo National Forest Plan, Appendix N, 1986 and Lolo National Forest Dead and Down Guidelines, 1997

Habitat Group	Required Snags per Acre (10-20"/20+"/ replacement trees)*	Required snags per Acre (greater than 10")/replacement trees)β
1	----	1-2 / 8-12
2	3-4 / 0.1 / 0.3	1-2 / 8-12
3	----	1-12 / 8-12
4	3.5 / 0.1 / 0.3	4-12 / 8-12
5	1 / 0.1 / 0.3	1-12 / ---
6	---	---
All groups (Mean± standard error)	No requirement	No requirement

* From Lolo National Forest Plan, Appendix N, 1986

β From Lolo National Forest Dead and Down Guidelines, 1997

Table Snags 2: Estimates of snags per acre 10"+ DBH, 15"+ DBH, and 20"+ DBH by Snag Analysis Group for the Lolo NF. 90% confidence intervals and total number of FIA plots within each group are also displayed. (From USFS, R1, 2018)

Forest	Snag Analysis Group	Snags per Acre 10"+			Snags per Acre 15"+			Snags per Acre 20"+			Total Number PSUs	Number Forested PSUs	Total Number subplots w/forested PVT
		Mean	90% CI - Lower Bound	90% CI - Upper Bound	Mean	90% CI - Lower Bound	90% CI - Upper Bound	Mean	90% CI - Lower Bound	90% CI - Upper Bound			
Lolo	PICO	18.1	12.0	25.0	2.3	1.0	3.9	0.4	0.0	0.8	57	57	230
	Warm Dry	10.5	7.8	13.6	3.6	2.5	4.9	1.1	0.5	1.7	123	123	496
	Warm Moist	13.2	9.1	17.7	4.5	2.8	6.4	1.4	0.5	2.5	38	38	155
	Cold Cool Moist	21.6	17.5	25.8	5.2	3.7	6.8	1.7	1.0	2.5	117	117	463
	Cold*	33.6	23.1	44.9	10.0	5.3	15.5	2.8	1.0	5.1	25	25	96
	Cool Moist*	18.3	14.3	22.5	3.8	2.6	5.3	1.4	0.8	2.2	92	92	367

Snag abundance on the LNF exceeds requirements in LNF Plan, Appendix N and the Lolo Dead and Down Guidelines (U.S. Department of Agriculture 1997). However, these guidelines were written for retention in timber harvest units where snag densities would be very low. Overall, snag densities, on average, across the LNF, are far above requirements and should provide habitat for snag-dependent species. Other indicators, such as breeding bird survey data, observations of woodpeckers in formal and informal surveys across the Lolo Forest also corroborate that snags are abundant enough to support populations of these species.

Within the proposed action, the requirements of Lolo Forest Plan Appendix N would be followed to retain snags within treatment units. Many green trees would be retained during harvest to provide seed for young trees, provide shade and shelter for regenerating trees, and provide some cover for wildlife. After harvest, these units would be burned resulting in the death of some of these trees and a future crop of snags for species using snags. Within untreated areas (especially Cruzane Gulch), as forests age, snag densities increase which would help support species which

use snags. Prescribed fire on the South side of Cruzane Mountain would knock over and consume some existing snags but kill new trees resulting in future snags.

DRAFT

Lolo National Forest Plan Compliance

See attached “Forest Plan Wildlife Standards” discussion.

Literature Cited

- Allen, L.R., 2012. A review of Grizzly Bear Recurring Use Areas Associated with the Selkirk and Cabinet-Yaak Ecosystems. USFS Annual Report.
- Bradley, L., J. Gude, N. Lance, K. Laudon, A. Messner, A. Nelson, G. Pauley, M. Ross, T. Smucker, J. Steuber & J. Vore. 2015. Montana gray wolf conservation and management: 2014 annual report. 60. Helena, MT.
- Brewer, L. T., R. Bush, J. E. Canfield & A. R. Dohmen. 2009. Northern goshawk northern region overview key findings and project considerations. 54. Missoula, MT.
- Christensen, A. G., L. J. Lyon & J. W. Unsworth. 1993. Elk management in the northern region: Considerations in forest plan updates or revisions. 10. Ogden, UT.
- Copeland, J. P., K. S. Mckelvey, K. B. Aubry, A. Landra, J. Persson, R. M. Inman, J. Krebs, E. Lofroth, H. Golden, J. R. Squires, A. Magoun, M. K. Schwartz, J. Wilmot, C. L. Copeland, R. E. Yates, I. Kojola & R. May (2010) The bioclimatic envelope of the wolverine (*Gulo gulo*): do climatic constraints limit its geographic distribution? *Canadian Journal of Zoology*, 88, 233-246.
- Kendall, K.C., Macleod, A.C., Boyd, K.L., Boulanger, J., Royle, J.A., Kasworm, W.F., Paetkau, D., Proctor, M.F., Annis, K. and Graves, T.A., 2016. Density, distribution, and genetic structure of grizzly bears in the Cabinet-Yaak Ecosystem. *The Journal of Wildlife Management*, 80(2), pp.314-331.
- Kasworm, W. F., T. G. Radandt, J.E. Teisberg, A. Welander, W. Wakkinen, M. Proctor, and H. Cooley. 2018. Selkirk Mountains grizzly bear recovery area 2017 research and monitoring progress report. U.S. Fish and Wildlife Service, Missoula, Montana. 46 pp.
- Lyon, L. J., T. N. Lonner, J. Jones, C. L. Marcum & D. Sall. 1982. Montana cooperative elk-logging study. 72-89.
- MBEWG. 2010. Montana bald eagle management guidelines: An addendum to Montana Bald Eagle Management Plan, 1994. ed. C. A. M. Hammond, 13. Helena, MT.
- Montana Fish Wildlife and Parks. 2015. Montana statewide elk management plan and population status charts and objective maps. Montana Fish, Wildlife, and Parks.
- Olson, L. E., J. D. Sauder, N. M. Albrecht, R. S. Vinkey, S. A. Cushman & M. K. Schwartz (2014) Modeling the effects of dispersal and patch size on predicted fisher (*Pekania [Martes] pennanti*) distribution in the U.S. Rocky Mountains. *Biological Conservation*, 169, 89-98.
- Ranglack, D., B. Garrott, J. Rotella, K. Proffitt, J. Gude & J. Canfield. 2014. Evaluating elk summer resource selection and applications to summer range habitat management.
- Reynolds, R. T., R. T. Graham & H. M. Reiser. 1992. Management recommendations for the northern goshawk in the southwestern United States. 90. Fort Collins, CO.
- Samson, F. B. 2005. A conservation assessment of the northern goshawk, black-backed woodpecker, flammulated owl, and pileated woodpecker in the northern region. 125. Missoula, MT.
- Sauder, J. D. & J. L. Rachlow (2014) Both forest composition and configuration influence landscape-scale habitat selection by fishers (*Pekania pennanti*) in mixed coniferous forests of the Northern Rocky Mountains. *Forest Ecology and Management*, 314, 75-84.
- Schmetterling, D. A. & M. K. Young (2008) Summer movements of boreal toads (*Bufo boreas boreas*) in two western Montana basins. *Journal of Herpetology*, 42, 111-123.
- Servheen, C., J. S. Waller & P. Sandstrom. 2001. Identification and management of linkage zones for grizzly bears between the large blocks of public land in the northern Rocky Mountains. Missoula, MT.

- . 2003. Identification and management of linkage zones for wildlife between the large blocks of public land in the northern Rocky Mountains. 24. Missoula, MT.
- U.S. Department of Agriculture, Forest Service. 1997. Lolo National Forest dead down habitat components guidelines. 2.
- . 2004. Biological assessment for grizzly bears that occur outside the Northern Continental Divide recovery zone, Lolo National Forest. 27.
- . 2007. Northern Rockies lynx management direction record of decision. 71.
- U.S. Department of Interior, Fish and Wildlife Service. 2009. 50 CFR Part 17, Federal Register /Vol. 74, No. 62 /Thursday, April 2, 2009 /Rules and Regulations / Endangered and Threatened Wildlife and Plants; Final Rule To Identify the Northern Rocky Mountain Population of Gray Wolf as a Distinct Population Segment and to Revise the List of Endangered and Threatened Wildlife, Pages 15123 - 15188 [FR DOC # E9-5991]. 15123-15188. Washington, DC: U.S. Fish and Wildlife Service.
- (2011) Endangered and threatened wildlife and plants; 12-month finding on a petition to list a distinct population segment of the fisher in its United States Northern Rocky Mountain range as endangered or threatened with critical habitat. *Federal Register*, 76, 38504-38532.
- (2013a) Endangered and threatened wildlife and plants; Revised designation of critical habitat for the contiguous U.S. distinct population segment of the Canada lynx and revised distinct population segment boundary; Proposed rule. *Federal Register*, 78, 59430-59474.
- (2013b) Endangered and threatened wildlife and plants; threatened status for the distinct population segment of the North American wolverine occurring in the contiguous United States. *Federal Register*, 78, 7864-7890.
- . 2014. 50 CFR Part 17, Threatened Status for the Distinct Population Segment of the North American Wolverine occurring in the Contiguous United States. U.S. Department of the Interior, Fish and Wildlife Service. Proposed rules; withdrawal. Federal Register / Vol. 79, No. 156 / Wednesday, August 13, 2014 / Proposed Rules, 47522-47545.
- . 2017. Species Status Assessment for the Canada lynx (*Lynx canadensis*) Contiguous United States Distinct Population Segment Version 1.0. 292. Lakewood, CO.